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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND  
INTERFERENCES**

Applicant: Martin L. Hage  
Serial No.: 09/305,586  
Filed: May 5, 1999

Examiner: A. Johnstone  
Group Art Unit: 1733  
Docket No.: 589.015US1

**TITLE: TEMPORARY PROTECTIVE LAYER ON POLYMERIC  
ARTICLES**

#23/UA E  
4/3/03

**APPEAL BRIEF TO THE BOARD OF  
PATENT APPEALS AND INTERFERENCES OF THE  
UNITED STATES PATENT AND TRADEMARK OFFICE**

**BOX AF (Appeals)**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

This is an appeal from the Office Action mailed on October 23, 2002 finally rejecting claims 1, 3-5, 7-9, 11, 12, 14-16 and 21-26, all of the claims in the Application. All other claims are cancelled as drawn to a non-elected invention.

This Brief is being filed in triplicate along with authorization to debit \$310.00 to Deposit Account No. 50-1391 to cover the fee for the appeal. Appellants request the opportunity for a personal appearance before the Board of Appeals to argue the issues of this appeal. The fee for the personal appearance will be timely paid upon receipt of the Examiner's Answer.

CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this Transmittal Letter and the paper, as described herein, are being deposited in the United States Postal Service, as first class mail, with sufficient postage, in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on March 26, 2003.

Mark A. Litman  
Name

Signature

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**REAL PARTY IN INTEREST**

The real party in interest is Vision-Ease Lens, Inc. a wholly owned subsidiary of BMC Industries, Inc. a corporation organized under the Laws of the State of Minnesota and having its headquarters at One Meridian Crossings, Suite 850, Minneapolis, Minnesota 55434.

### **STATUS OF CLAIMS**

Claims 1, 3-5, 7-9, 11, 12, 14-16 and 21-26 have been finally rejected under 35 U.S.C. 103(a) as unpatentable over Spector et al. (U.S. Patent No. 5,883,169) when further considered with Fischer et al. (U.S. Patent No. 5,130,353), Albrich et al. (U.S. Patent No. 6,033,718) and EPO Application 0 819 744 A2.

Claims 9 and 12 have been rejected under 35 U.S.C. 112, first and second paragraphs.

### **STATUS OF AMENDMENTS**

No Amendments were filed after the Final Rejection. All previous amendments have been entered.

### **SUMMARY OF THE INVENTION**

The temporary protection of polymeric articles, particularly polymeric articles with optical qualities such as ophthalmic lenses formed by the lamination of individual lens blanks, can be effected by the application of polymeric compositions to the surface of the polymer article, the composition being applied as a film or forming a film on a surface of the polymeric article. The individual lens blank is prepared for lamination or coating by application of a selective solvent to the polymeric film, the selective solvent dissolving, dispersing or otherwise removing the polymeric film but neither reacting with or dissolving the composition of the polymeric article. The solvent even may comprise water or aqueous solutions, although C1 to C5 alcohols and alkylene glycol ethers or any blends of these solvents may also be used. (Page 4, lines 11-21)

The invention comprises a process for manufacturing laminated polymeric optical elements comprising:

- a) applying to at least one surface of a first polymeric optical element a first solvent-soluble or first solvent dispersible film, wherein said first polymeric optical element is not soluble in said first solvent;
- b) removing said film from said first polymeric optical element by contacting the film with said first solvent which dissolves or disperses said film; and
- c) laminating said first polymeric optical element to a second polymeric optical element to form a laminated polymeric optical element;

wherein said first polymeric optical element and said second polymeric optical element are wafer components for an ophthalmic lens, and wherein said film comprises a polymer having an acid value greater than or equal to 100. (Original Claim 1)

### **ISSUES ON APPEAL**

There are two generic issues on Appeal. The first issue is whether the subject matter of dependent claims 9 and 12 is in compliance with the requirements of 35 U.S.C. 112, first and second paragraphs with respect to the term “cellulose-based polymers having an acid value greater than or equal to 100.”

The second generic issue is whether the subject matter of claims 1, 3-5, 7-9, 11, 12, 14-16 and 21-26 are obvious under 35 U.S.C. 103(a) as unpatentable over Spector et al. (U.S. Patent No. 5,883,169) when further considered with Fischer et al. (U.S. Patent No. 5,130,353), Albrich et al. (U.S. Patent No. 6,033,718) and EPO Application 0 819 744 A2.

### **RELATED APPEALS AND INTERFERENCES**

Appellants do not know of any other pending U.S. Patent Applications that are on appeal which have issues that overlap with the issues in this Appeal. No Interference proceedings before the U.S. Patent and Trademark Office are known by Appellants to have any substantive relationship to the subject matter of this Appeal.



### **GROUPING OF CLAIMS**

The following grouping of claims is made in compliance with the requirements of 37 C.F.R. 1.191 for the content of an Appeal Brief. The following grouping of claims is made to expedite this Appeal and narrow issues, and is not intended to waive or limit the right of the Applicants to enforce and defend claims separately, even though they are grouped for convenience in this Appeal.

#### **With Respect to the Issues Under 35 U.S.C. 112, First and Second Paragraphs**

Claims 9 and 12 shall stand or fall will stand or fall with the patentability of claim 9 under this issue.

#### **With Respect to the Issues Under 35 U.S.C. 103(a)**

Claims 1, 3-5, 7-8, 11, 14-16 and 22-26 shall stand or fall with the patentability of claim 1.

Claims 9 and 12 shall stand or fall with the patentability of claim 9 under this issue. These claims recite the cellulose-based polymers that the Office Action asserted did not exist.

Claim 21 shall stand or fall by itself, this claim reciting a specific structure to the lens.

## **RESPONSE TO THE REJECTIONS**

### **Rejections Under 35 U.S.C. 112, First Paragraph**

The rejection asserts that the specification did not reasonably convey to one skilled in the art that applicants had possession of the invention. The rejection makes the assertion that the original specification "...does not support the coating being selected from cellulose-based polymers having an acid value greater than or equal to 100 **because cellulose –based polymers do not have pendant acidic groups or pendant salts of the acidic groups...**"

That assertion is totally in error with regard to the nature of cellulose polymers. Appellant encloses herewith a copy of the structural formula for Carboxymethylcellulose, a well known staple polymer in commerce for at least twenty years. As can be seen from this structure, there are free acid groups. ([www.sbu.ac.uk/water/hycmc.html](http://www.sbu.ac.uk/water/hycmc.html)) A similar structure (with the methyl replaced by propyl groups) exists for carboxypropylcellulose. Based on this generally available information, the acid-substitution of cellulosic polymers is well known. Also note that this commercial product is clearly described as readily susceptible to varying degrees of substitution, directly under the structural formula. It is therefore absolutely clear that the underlying basis of the rejection, that cellulose-based polymers do not have pendant acid groups is in error and therefore the rejection is in error.

The material limitations in claims 1 and (9 and 12) include at least the following descriptions:

"...applying to at least one surface of a first polymeric optical element a first solvent-soluble or first solvent dispersible film... wherein said film comprises a polymer having an acid value [is] greater than or equal to 100..." (Claim 1) and

“...wherein said film comprises a polymer selected from the group consisting of acrylic polymers, polyester polymers, polyurethane polymers, polyvinyl resins, and cellulose based polymers...” (Claims 9 and 12, emphasis added)

It is asserted that the disclosure on pages 5-7 does not allow for “cellulose-based polymers” to satisfy the limitation of “...wherein said film comprises a polymer having an acid value greater than or equal to 100...”

This rejection is clearly in error.

Rejection Under 35 U.S.C. 112, Second Paragraph

Because of the well known nature of acid-substituted cellulose-based polymers and their disclosure in the original specification, the term would be well understood by one skilled in the art and the rejection under 35 USC 112, second paragraph is clearly in error. This rejection is in error for the same reasons that the rejection above under 35 USC 112, first paragraph is in error.

Rejection Under 35 U.S.C. 103(a)

This rejection is believed to be fairly summarized as set forth in the Office Action as follows:

- 1) The only difference between the invention as claimed and the technology disclosed by Spector et al. (U.S. Patent No. 5,883,169) is that:
  - a) Spector protects lens elements with a peelable polymeric film;  
and
  - b) The invention claims protection of lens elements with a soluble dissolvable polymeric film.
- 2) It is asserted to be a “conventional alternative technique for removing temporary films from polymeric ophthalmic lenses is removal by dissolving or

dispersing the film with such a solvent, such as water or an aqueous solution.”  
(Citing Fischer et al., Marias Albrich et al., and Beavers et al., with the newly cited EPO reference showing that it is known how to add acid groups to polymers to increase acid numbers.)

3) Therefore it would have been obvious to one of ordinary skill in the art to employ such a conventional alternative technique for removal of the temporary protective film in the Spector et al. ‘169 method.

Claims 1, 3-5, 7-8, 11, 14-16 and 22-26 stand or fall with the patentability of claim 1

This rejection is respectfully traversed as it fails to meet either the legal or factual substantive minimums necessary to establish a *prima facie* case of obviousness in accordance with 35 U.S.C. 103(a). There is no disclosure of polymers having the high acid values recited originally in claim 10 and now included in claim 1. That recitation was described in the specification as providing rapid removal of the coating in water, as opposed to requiring high alkalinity solutions (as had to be used by Fischer). This performance characteristic is detailed further below, but the absence of any teaching of this limitation is asserted here to establish the unobviousness of the claimed subject matter. As no reference of record teaches soluble layers having the high acid value, and as there was no identification in the art used in the rejection that such high acid values improve the performance of the layer, especially in its ability to be removed without requiring further cleaning, the subject matter as a whole recited in claim 1 is clearly unobvious.

The rejection and the Spector reference also fails to comprehend the benefits of a solvent/dispersant removal of a film versus a stripping process (as taught by Spector). Although stripping protects against some accumulation of foreign matter on a lens surface, the use of a peelable lens provides other problems. Even though Spector

suggests the addition of antistatic agents to the strippable film (column 9, lines 38-43) to prevent dust collection, the antistatic agent does not prevent static from building up on the lens surface. As is well known (e.g., from rubbing balloons, for triboelectric charging phenomena, and the like), polymeric surface are subject to charging that can attract dust and foreign matter. The application and physical removal of two polymers with respect to each other can create charge buildup, which will in turn attract particulates and contaminants. The process of Spector, even with an antistatic agent in the strippable film, can still develop triboelectric charges on the lens from the lens peeling process. Additionally, the use of adhesive tape to strip the film (e.g., Spector, column 10, lines 1-6) can contaminate the lens with pressure-sensitive adhesive that would attract and retain contaminants and would itself act as a contaminant if it any adhesive is transferred to a lens surface.

Additionally, as the film removal of the invention is done by a wash solution (e.g., preferred in water or aqueous solution), a separate wash step of the lens surface is not necessary. This removes the need for two distinct steps in the use of the lens. Additionally, the protective step of Spector protects only a single surface, and handling of the lens during lamination would require that exposed surfaces be cleaned, even if not between laminated surfaces. The present process therefore would reduce the number of steps needed in the lamination process.

Additionally, the use of certain water-soluble or water-dispersible polymers (e.g., poly(vinyl alcohol), amylose or amylopectin films, starch films, etc.) would be disposable directly into water waste streams and would be minimally polluting or non-polluting according to many industrial standards. The solid stripped film of Spector must become solid waste product, requiring additional handling and disposal.

The Fischer coating is not a mild alkaline coating solution. Unlike the coating recited in the claims with a high acid value, the detergent to remove the Fischer coating

must be provided externally. The coating of Fischer was intended for an entirely different purpose, imbibition and mass transfer from the layer to another layer, for which reason it is not well suited for the cleaning purposes and protection purposes of the invention. The Fischer coating is cellulosic, and as such it is a nonionic material, not a base neutralized anionic polymer, for which reason it will have disadvantages when used as a temporary protective coating. Even though the present invention allows for the use of certain cellulosic materials, those must be provided with the high acid number recited in claim 1, and this excludes the polymers shown by Fischer. The problems with those se polymers of Fischer are as follows:

1. The Fischer coating will be a poor cleaning agent for the lens. In the practice of the present invention, this cleaning function is a major benefit to our coating since anionic detergents (that may be included in the polymers) are superior foamers as well as chelation agents thus making them excellent for lifting and suspending particles in solution.

2. In US 5,130,353, their coating necessitates the use of a detergent for removal because, while their vehicle may be water swellable, it is not truly water soluble or readily dispersible for which reason it can not be removed with pure water. Due to the lesser water solubility of the cellulosic material as compared to the high acid polymers (e.g., the anionic polymers) of our coating, there is the very real risk of a contaminating residue being left on the lens when using the Fischer coating, especially if the detergent concentration runs low in the wash tank, which is not uncommon. By virtue of the intentionally very high acid value of our vehicle, the risk of an insoluble residue is nonexistent for our coating since it is its own detergent, removing itself and other contaminants. The inventors have experimented with such hydroxyl functional nonionic materials (described in Fischer) and found them to be grossly inferior because of this very issue of a pure water insoluble residue that can be difficult to remove.

The EPO reference has nothing to do with temporary films on ophthalmic lens surfaces. Its teaching with respect to the need for acid values over 100 to enable water-solubility is appreciated, but that has no direct nexus with the teachings of Spector or the other references cited in the rejection. The fact that five references are needed to establish the assertion of obviousness of claim 1, and the majority of the references have no direct relationship to each other or to the field of technology of the invention supports the feeling that the rejection is the piecemeal reconstruction of the limitations of the claims by picking and choosing among references, rather than showing a clear path of obviousness, with reasoned teachings in the references leading to intended modifications in the prior art with intended results.

It is also to be noted that cited references (EPO 0 819 744 and US 6,093,240) are for permanent resin coatings. They have no application whatsoever to easily removed films. In fact, their objective is directly against easy removal. It is difficult to avoid the inference that the references are being considered because of incidental disclosures of limitations in the present claims, while when considered as a whole, the references completely fail to combine in an orderly manner to instruct practice of the invention. AS the references teach these compositions as secure, permanent coatings, it is not obvious to assert that it would be obvious to use them as easily removable coatings. That assertion defies reasonableness and does not establish obviousness.

It is clear that the combination of Spector in view of Fischer, Albrich, Beavers, and the EPO reference fails to teach the present invention as claimed. This rejection is in error and must be reversed.

Claims 9 and 12 shall stand or fall with the patentability of claim 9 under this issue.

These claims recite the cellulose-based polymers that the Office Action asserted did not exist. As there is clearly no evidence on the record of this case that the PTO

believed this polymer even existed, it is self-evident that its use was not obvious to the PTO based on the references before it. This rejection is in error and must be reversed.

Claim 21 shall stand or fall by itself, this claim reciting a specific structure to the lens.

There is no evidence in the underlying references that the removable films of the prior art could be used with lenses that were highly structured on their surfaces, as recited in these claims. The fact that the films are highly soluble by way of their high acid number is what enables their safe use on lenses and their ability to be removed cleanly from the surfaces with mild solutions. This concept is completely missing from the art of record, in addition to the complete failure to disclose the use of wash-removable lenses with highly structured lens surfaces.

This rejection is in error and must be reversed.



**CONCLUSION**

All rejections of record have been shown in detail to be in error. The rejection should be reversed and all claims should be indicated as allowable.

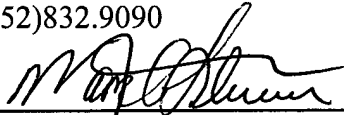
Applicants believe the claims are in condition for allowance and request reconsideration of the application and allowance of the claims. The Examiner is invited to telephone the below-signed attorney at 952-832-9090 to discuss any questions that may remain with respect to the present application.

Respectfully submitted,  
INVENTOR NAMES

By their Representatives,  
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Date March 26, 2003

By

  
Mark A. Litman  
Reg. No. 26,390

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Box AF, Assistant Commissioner of Patents, Washington, D.C. 20231 on March 26, 2003.

Name: Mark A. Litman

  
Signature

### APPENDIX - THE CLAIMS ON APPEAL

1. A process for manufacturing laminated polymeric optical elements comprising:
  - a) applying to at least one surface of a first polymeric optical element a first solvent-soluble or first solvent dispersible film, wherein said first polymeric optical element is not soluble in said first solvent;
  - b) removing said film from said first polymeric optical element by contacting the film with said first solvent which dissolves or disperses said film; and
  - c) laminating said first polymeric optical element to a second polymeric optical element to form a laminated polymeric optical element;wherein said first polymeric optical element and said second polymeric optical element are wafer components for an ophthalmic lens, and wherein said film comprises a polymer having an acid value greater than or equal to 100.
3. The process of claim 1 wherein said first solvent is water or an aqueous liquid.
4. The process of claim 1 wherein said first solvent is water.
5. The process of claim 1 wherein said film is applied to said first polymeric optical element by applying a liquid coating composition to said at least one surface and then drying said coating composition to form said film.

7. The process of claim 4 wherein said film is applied to said first polymeric optical element by applying a liquid coating composition to said at least one surface and then drying said coating composition to form said film.

8. The process of claim 1 comprising:

a) applying to at least one surface of a first polymeric optical element and a second polymeric optical element a first solvent-soluble or first solvent dispersible film, wherein said first polymeric optical element and said second polymeric optical element are not soluble in said first solvent;

b) removing said film from said first polymeric optical element and said second polymeric optical element by contacting the film with said first solvent which dissolves or disperses said film; and

c) laminating said first polymeric optical element to said second polymeric optical element to form a laminated polymeric optical element.

9. The process of claim 1 wherein said film comprises a polymer selected from the group consisting of acrylic polymers, polyester polymers, polyurethane polymers, polyvinyl resins, and cellulose based polymers.

11. The process of claim 1 wherein said polymer is an acrylic or polyester polymer.

12. The process of claim 8 wherein said film comprises a polymer selected from the group consisting of acrylic polymers, polyester polymers, polyurethane polymers, polyvinyl resins, and cellulose based polymers.

14. The process of claim 8 wherein said polymer is an acrylic or polyester polymer.

15. The process of claim 1 wherein said first solvent-soluble or solvent dispersible film is applied to said first polymeric optical element from a solution or dispersion in a coating solvent.

16. The process of claim 15 wherein said first solvent is different from said coating solvent.

21. The process of claim 1 wherein at least one of said wafer components for an ophthalmic lens has a surface feature on a major surface of a wafer component, said surface feature being selected from the group consisting of tabs, grooves, notches, and recessed power segments.

22. The process of claim 1 wherein said film comprises a polymer selected from the group consisting of acrylic polymers, polyester polymers, polyurethane polymers, and polyvinyl resins.

23. The process of claim 8 wherein said film comprises a polymer selected from the group consisting of acrylic polymers, polyester polymers, polyurethane polymers, and polyvinyl resins.

24. The process of claim 8 wherein said first solvent is an aqueous solvent.

25. The process of claim 8 wherein said first solvent is water.

26. The process of claim 8 wherein said first solvent is an aqueous solution.

27. The process of claim 1 wherein said film comprises a polymer selected from the group consisting of acrylic polymers, polyester polymers, polyurethane polymers, and polyvinyl polymers.

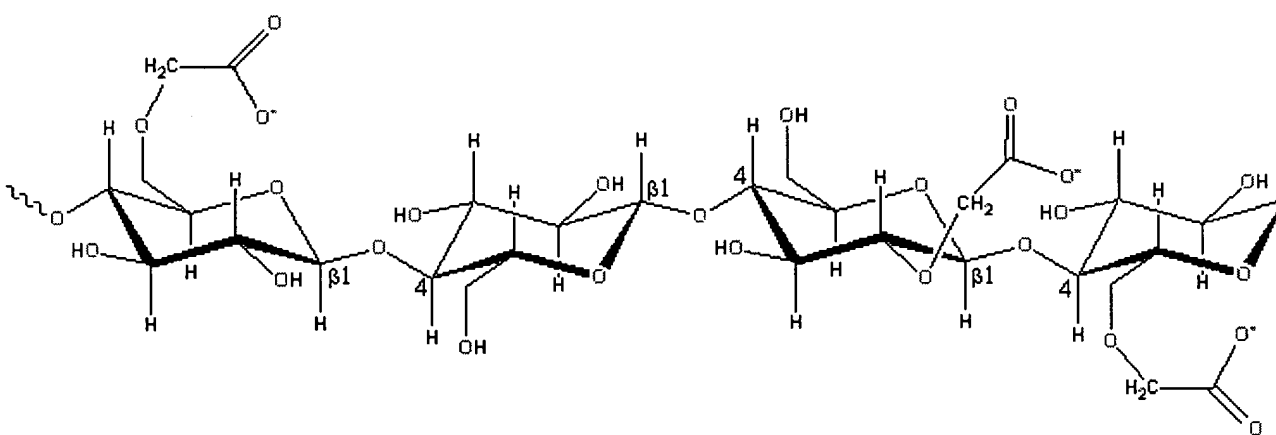
28. The process of claim 1 wherein said film comprises a polymer selected from the group consisting of acrylic polymers, polyester polymers, polyurethane polymers, and polyvinyl polymers.

## Carboxymethylcellulose (CMC)

### Source

Carboxymethylcellulose (CMC; **E466**) is a derivative of **cellulose** formed by its reaction with alkyl chloroacetic acid.

### Structural unit



The CMC structure is based on the β-(1→4)-D-glucopyranose polymer of **cellulose**. Different products may have different degrees of substitution, but it is generally in the range 0.6 - 0.95 derivatives per monomer unit.

### Molecular structure

CMC molecules are somewhat shorter, on average, than native cellulose with uneven derivatization areas of high and low substitution. This substitution is mostly 2-O- and 6-O-linked, followed in importance by 2,6-di-O- then 3-O-, 3,6-di-O-, 2,3-di-O- lastly 2,3,6-tri-O-linked. CMC molecules are extended (rod-like) at low concentrations but at higher concentrations the molecules overlap and then, at high concentrations, entangle to become a thermoreversible gel. Increasing ionic strength and reducing pH both decrease the viscosity as they cause the polymer to become more coiled.

### Functionality

CMC dissolves rapidly in cold water and is mainly used for controlling viscosity without gelling (CMC at typical concentrations, does not gel even in the presence of calcium ions). As its viscosity drops on heating, it may be used to improve the volume yield during baking by encouraging gas bubble formation. Control of viscosity allows use as thickener, phase and emulsion stabilizer (e.g. with milk casein as suspending agent). CMC can be also used for its water-holding capacity as this is high even at low viscosity; particularly when used as the Ca<sup>2+</sup> salt. Thus, it is used for retarding staling and reducing fat uptake into fried foods.

The average chain length and degree of substitution are of great importance; the more-hydrophobic substituted CMCs are **thixotropic** but more-extended higher substituted CMCs are **pseudoplastic**. At low pH, CMC may form cross-links through lactonization between carboxylic acid and free hydroxyl groups.

Interactive structures are available (COW [**Plug-in, ActiveX**], 20 KB; **Chime**, 5 KB).

Please submit any **comments and suggestions** you may have.

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This page was last updated by **Martin Chaplin**  
on **25 November, 2002**